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# 27 TOP TIPS

F1

*Edited by Matt Nicholson*

One of the most important sections of PC PLUS magazine has to be the Help Screen section. Since it first appeared back in Issue 3 it has become a meeting place for raw beginners and hardened hackers alike, generating a never-ending stream of tips and advice, batch files and program listings. It is certainly a valuable source of information for both readers and staff, as more amazing ways of getting that little bit more out of your PC are revealed every month.

This 16-page booklet contains just 27 of these snippets, and provides a foretaste of *The Help Screen Collection*, a 160-page book containing the very best from the Help Screen and FactSheet sections, sorted, indexed and even re-written where necessary. See the back of this booklet for further details.

We have not credited the author of each original letter, but special thanks go to Jane Toft for designing this booklet, Paul Stephens, Simon Williams and Andy Wilton who wrote many of the replies, Paul Mullen of the Independent PC Users Group who provided much useful information, and of course all the readers who have contributed over the years.

*Matt Nicholson*

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### Surplus Line Feeds

A problem that occurs with some word processor and printer combinations is when the software sends a line-feed command along with a carriage return, to make sure that the next line does not overwrite the first, and the printer puts in a line-feed command as well. The result is two line feeds and a surplus blank line between each line of text.

Most printers have a small 'dip' switch, usually round the back or under a flap somewhere (see the manual for details), that determines whether a line feed is added whenever a carriage return is received. If you are having problems change the position of this switch. If this doesn't work then you may be able to stop the line feed from the software. *NewWord* and *WordStar*, for example, includes special printer drivers that do not send a line-feed with each carriage return.

A rather more drastic solution is to disable pin 14 of the centronics cable. Earthing pin 14 tells the printer to line-feed after each carriage return, so disabling it can solve the problem. This can be done either by disconnecting the wire from the pin inside the D-connector, or taping over the connectors at the printer end of the lead.

### All About Batch Files

These are special files, with the file extension BAT, which consist of a series of MS-DOS commands. They are executed by simply entering the file name, without the BAT extension.

There are several ways of writing batch files. Perhaps the simplest is to use the command `copy con BATCH.BAT`, a special use of the COPY command that copies whatever you type straight into a file called, in this instance, BATCH.BAT. When you have finished, enter 'Control-Z' by holding down [Ctrl] while tapping [Z], and then pressing [enter]. The new file will then be 'copied'.

You can call a batch file anything you like, though it is advisable not to call it by the same name as any other files on the disk with the extension COM or EXE as these have priority. Perhaps the most useful

### Sending Form Feeds

Most printers interpret ASCII code 12 as a 'form feed' command, automatically moving on to the top of a new sheet of paper when it is received. Fortunately this control code can actually be entered from the MS-DOS prompt directly, simply by holding down [Ctrl] and tapping [L]. The following batch file, called FF.BAT, can be useful. Simply enter FF at the

MS-DOS prompt to send a 'form feed' instruction to the printer:

```
ECHO OFF  
ECHO ^L >PRN
```

Displaying this batch file using the MS-DOS command TYPE reveals the ^L to have been replaced by the biological symbol that represents ASCII code 12.

name is AUTOEXEC.BAT, as this performs a unique function in MS-DOS. Any file with this name is AUTOmatically EXECuted every time you turn your PC on, or re-boot by holding down [Ctrl] and [Alt] and simultaneously pressing [Del].

For example: supposing you have used CONFIG.SYS to set up a RAM disk called Drive C, and want to set up a disk to automatically copy the program file PROGRAM.COM into RAM disk, transfer control to the RAM disk, and then run the program. On the way you might also set VERIFY ON so that any file copying is automatically verified. You would do this by entering the following on the A-prompt:

```
A>copy con autoexec.bat
VERIFY ON
COPY program.com c:
c:
program
^Z
      1 File(s) copied
```

## Finding Text Across Files

Here are two variations of a simple batch file that takes the same command parameters as the DOS command FIND, but accepts wild cards for the file specification. The first handles badly matched files specifications elegantly, The second is of the quick one-liner variety:

### Variation One:

```
ECHO OFF
if exist %2 goto found
ECHO No files match specification
goto end
:found
for %%a in (%2) do find %1 %%a
:end
```

### Variation Two:

```
if exist %2 for %%a in (%2) do find %1 %%a
```

## Typewriter

An expensive word processor is all very well for writing *War and Peace II – Peace and Quiet*, but it is a bit excessive for writing short memos to your boss reminding him about your imminent rise: it takes longer to load the word processor than it does to write the memo.

What follows is a short batch file that turns your PC and printer into an electronic typewriter. Enter it in a file called TW.BAT and you can summon it by entering **TW**. It has disadvantages, in that it doesn't word-

wrap and you have to get every line right before sending it to the printer – but it's free, so who's complaining?

```
ECHO OFF
CLS
ECHO Now in Typewriter mode - Ctrl-Z and
ECHO [return] to finish and print text
ECHO -----
COPY CON PRN >NUL
CLS
```

## Printing Files

You can send a file to the printer by first pressing [Ctrl] and [P], which echoes screen display to the printer, and then using the TYPE command. [Ctrl [P] is a toggle, so press it again to stop echoing to the printer.

However a better way is **COPY filename PRN**. The PRN part of this command is a special MS-DOS 'reserved file name' which means the currently selected printer. You won't see the file's contents displayed on the screen, and your print won't contain any surplus A-prompts.

## Using Amstrad's Joystick

The Amstrad PC1512 and 1640 joystick – the one that plugs into the back of the keyboard – is not compatible with the standard IBM joystick. There is a way round this though, which works with many PC games and relies on the fact that moving the Amstrad joystick control is

## Fancy Prompts

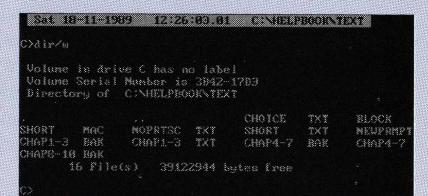
The famous A-prompt performs a function, it must be admitted. It tells you that you are logged on to Disk Drive A, but that's about all. But you can tailor the prompt to do a lot more than that – to tell you the time, which sub-directory you are logged in to, and a variety of other information. Below is a handy prompt that you might like to include in your AUTOEXEC.BAT, or put into a separate batch file labelled NEWPRMPT.BAT; but it requires ANSI.SYS to be loaded.

**NEWPRMPT.BAT** should be entered as a single line. Note that there are three spaces

```
prompt $e[s$e[1;1H$e[K $e[7m $d $t $p $e[0m$e[u$ns$g$e[0;59;"dir /w";13p
```

between the \$d and \$t, and three between \$t and \$p.

Once you've created this batch file enter **NEWPRMPT** and stand back in amazement. Try pressing [F1] too...



equivalent to pressing the cursor keys on the keyboard.

Instead of selecting for 'joystick' at the opening screen of the game, select 'keyboard'. If you are lucky you will be given the option of defining your own keys, in which case you simply move the joystick in the appropriate direction rather than select keys from the keyboard.

### Batch File Menu System

It is perfectly feasible to create a menu system using just the MS-DOS batch system. First of all, create a batch file called MENU.BAT which contains the following:

```
CLS
ECHO 1) Wordstar
ECHO 2) Supercalc
ECHO 3) Chit-Chat
```

For each choice on the menu, create further batch files as 1.BAT, 2.BAT and 3.BAT. The batch file for 1.BAT might look something like:

```
cd words
ws
cd \
menu
```

On running MENU.BAT the screen clears and the menu is displayed. The drive prompt appears at the end of the menu, at which point you simply enter the desired number which then runs the required menu selection. The main menu reappears when you quit the application. Put the command **menu** at the end of your AUTOEXEC.BAT file and you will automatically be presented with the menu as soon as you turn on or reboot your PC.

The main disadvantage of this system is that it is rather slow as it is continually loading batch files off disk. Each batch file takes up disk space too, which could cause problems on a floppy disk-based system. One way of speeding up at least the initial menu display is to put the menu text into a text file, called say MENU.TXT, and then put the line **TYPE MENU.TXT** at the end of AUTOEXEC.BAT. This would have much the same effect but the TYPE command is rather quicker than ECHOing successive lines of text.

An alternative is to use a short utility that returns an errorlevel to the batch file which depends on the key that has been pressed. The advantage of this technique is that the whole menu system can be built up from one batch file, and COM files are considerably faster to execute than batch files.

CHOICE.COM is such a utility that can be generated using DEBUG. Full details on how to create CHOICE.COM for yourself are to be found in the *PC PLUS Help Screen Collection*. See the back of this booklet for further details.

### Amstrad PC1512 Bug

The NVR program has bug in it – if you set the 'extended flow control' to ON, the ramdrive can be changed from C to D or E (assuming a single or twin floppy-drive model). This causes problems with some software, like GEM, which uses the RAM disk. Fortunately setting the flow control back to OFF resets the RAM disk to C.

### Printing a Spreadsheet

Successfully printing a wide spreadsheet on standard-width paper is one of the great challenges of PC computing. The following suggestions apply to a Lotus 1-2-3 compatible spreadsheet and an Epson FX dot matrix or compatible printer. Whichever combination you have, resign yourself to a little experimentation before you get usable results:

1. It is best to start by just having a go and see what you get. Enter /PPO to summon the Printer Options menu. This is where you control much of the appearance on the page, but for now simply press [h] to select Header and enter the line of text you want to appear on the top of each page.
2. Press [Esc] to move up to the previous menu, and press [r] to define the range (some compatibles may expect the command /PPR to select Printer Range). The top window may show something like **Range to Print [Wide 0:Pages 0]: B2**.
3. Specify the range you want printed, for example **A1..M27**.
4. Select Range again, and this time something like **Range to Print [Wide 124:Pages 1]: A1..M27** may appear. This informs you that the range you have selected is 124 columns wide and one page deep.
5. Press [Return] to accept, and select 'Go' from the PrintTo Printer menu.

The Print menu of a typical Lotus 1-2-3 compatible spreadsheet. Getting the settings right for your particular printer is rarely easy

F1:Help 2>Edit 3:Macro 4:Abs	Print
Define Margins: Top, Bottom, Left, Right	.....A%.....B%.....C%.....
PRINTTO	.....
PRINTER	: Jan Feb M
OPTIONS	& Pickle 800 800
	Tomato 1000 1000
Margins	:
Setup	& Pickle 560.00 560.00 5
PgLines	Tomato 900.00 900.00 9
Header	COSTS:
Footer	bread 63.36 63.36
Type	cheese 33.33 33.33
Quit	bread 36.00 36.00
	cheese 5.20 5.20
13 Branston pickle	66.67 66.67
14 Cooked Ham	26.67 26.67
15	

It would be possible to get more on one page if you set the printer to a condensed type face. This is usually done by sending the printer the appropriate ASCII codes first, usually detailed in your printer manual. On the Epson FX it is either ASCII code 15 or ASCII code 27 (frequently called ESC) followed by 15. Fortunately many Lotus compatibles provide for printer Setup codes, so proceed as follows:

1. Enter /PPO to get to the printer options menu, and press [s] for Setup.
2. Enter \027\015 as the setup code. The slash indicates an ASCII code rather than the actual characters zero, two and seven.
3. This puts the printer into condensed mode, however the right margin is still set to 80 characters. On an Epson printer normal character pitch is 10/inch while condensed packs 17/inch. This means that we can get 80\*17/10, or 136 characters across the page – quite enough to fit in our spreadsheet. So press [M] to select Margins, [R] to select Right, and enter 136.
4. Press [Esc], check that the range is as previously set, and press [g] to try again!

If you are lucky, and your printer is reasonably Epson-compatible, you should get something quite usable. If not, you will have to try again. See the panel below which describes some of the more common problems and ways of getting round them.

### Typical Spreadsheet Printing Problems

#### LINES WRAPPING ROUND

Usually means the margins are set incorrectly on the /PPO menu. Make sure Left Margin is set to zero and Right Margin to the number of characters that fit across the page. You can find this either by multiplying the specified character pitch by the width of the page in inches, or simply counting characters.

#### INCORRECT PAGE LENGTH

1. The number of lines on a page is specified on the /PPO menu under PgLines. Default is 66, which is suitable for a line pitch of 6 on standard 11-inch paper. You can find out the line pitch either from your printer manual or by measuring off an inch and counting.  
2. If the printer has a DIP switch controlling

'Skip perforation' make sure this is set OFF. Set ON it automatically advances four lines at the end of each page.  
3. Make sure any DIP switch on the printer controlling 'Page length' is set correctly.

#### SUPERFLUOUS LINES

Most spreadsheets send a carriage return command with line feeds. Make sure any DIP switch on the printer controlling 'automatic line feed' is set OFF.

#### INCORRECT TYPEFACE

Check the DIP switches to make sure the printer is set in Draft mode and not NLQ. Re-check the control codes required to select a condensed typeface.

### Write Protecting Files

It is often a good idea to write-protect essential MS-DOS files like AUTOEXEC.BAT, CONFIG.SYS and COMMAND.COM, particularly as some software installation routines insist on altering your configuration files without telling you. These three files will usually be found in the root directory (although it is possible for them to live in another directory). To write-protect them use the commands:

```
attrib +r autoexec.bat
attrib +r config.sys
attrib +r command.com
```

If you do later need to modify any of these files you can remove the read-only attribute with ATTRIB -R filename.

### Running MS-DOS from WordStar

As owners of *WordStar* know, the command ^KF takes you out to an MS-DOS prompt from which you can run an MS-DOS command. It is not a proper MS-DOS shell as once the command has executed you must return to *WordStar*. However, if you enter command at the prompt the command processor will be loaded and you can carry on for as long as you wish, entering exit to return to *WordStar*. Do remember though that the command processor takes up memory space of its own so this may not always work.

### Hard Carriage Returns

A little tip for all users of *NewWord 3* and *WordStar 4* who have been bugged by those hard carriage returns that appear at the end of ASCII files when you load them. Try keying [Ctrl] [n] and you will find then magically transformed to the soft carriage return we all know and love. Some versions of *WordStar* can be configured to support this feature from WSCHANGE; some versions use [Ctrl] [6] instead. Further information is provided in the *PC PLUS Help Screen Collection* (see the back of this booklet for details).

One problem with editing an ASCII text file in *WordStar* is the latter's insistence on putting a hard carriage return, shown as a '<', at the end of every line

insert Align

Since ^S and ^M are the ^S who have returns that appear at the end  
by keying [Ctrl] [n] and you  
to the soft carriage return  
of ^S can be configured  
- further details are  
Collection for ^S (see the back of  
use [Ctrl] [6] instead.

The command ^D^KF^D takes you out to an  
MS-DOS command. It is not  
command has executed you must  
you enter ^Dcommand^D at the prompt

### Updating Backup Disks

Although one should of course keep one's hard disk fully backed up at all times, for many of us our day-to-day work only involves changes to a few files in a single sub-directory, so a full backup seems like overkill. It is easier to simply keep up-to-date copies of the files that have changed on a floppy disk.

Unfortunately it is not always that easy to remember which files you have changed through the day. The following batch file, UPDATE.BAT, uses the MS-DOS utility REPLACE to automate the process (which must be on the current path):

```
ECHO OFF
for %%p in ("%1" "%2") do if %%p=="" goto wrong
for %%f in (a d) do replace %1.*.* %2 /%%f/p
goto end
:wrong
ECHO.
ECHO Format for the command is
ECHO UPDATE source-disk: dest-disk:
ECHO as in UPDATE a: c:
ECHO Copies files to the back up disk that are either
ECHO not already present or are later versions of
ECHO those already there. Asks for confirmation
before
ECHO copying each file. Current directories are
ECHO used unless otherwise specified.
:end
```

Note that this technique relies on the internal clock being set correctly. Check with the DATE command.

### Umlauts in Microsoft Word

You can use the macro facility of Microsoft Word (at least in version 4) to generate a ü (umlaut) as follows:

- 1 – Press [Shift][F3] to begin recording the macro;
- 2 – Hold down [Alt] and type the number 129 on the numeric keypad, to enter the code for ü;
- 3 – Press [Shift][F3] again to finish recording the macro;
- 4 – Type `uml^` followed by [Ctrl][u] and [Return], to save the macro to the glossary.

Note that in step 4, the ^ refers to the caret key, usually [Shift][6]. The ü is now saved in the glossary under `uml` but can also be generated by simply typing [Ctrl][u].

### Sending Messages on Prestel

Electronic mail has been a weakness of Prestel when compared to a scrolling system such as Telecom Gold. On Telecom Gold you can 'upload' a text file of virtually any length to your mailbox and let the Gold computers take care of word wrap and other formatting features. On

Prestel the mailbox will only take one screen-full of text at a time.

However, a little time spent with a decent word processor should enable you to create a file that can be uploaded successfully. You will have to set the line length (or right margin) to automatically word wrap on a 39-character line, and you will have to make sure that the file does not contain more lines than one Prestel screen. It is possible to send more than one screen's worth of text, providing you send a # symbol at the end of each screen – some experimentation will doubtless be necessary!

### Selective Delete

The batch file in the panel below, called DELB.BAT, deletes all the files in a directory except those specified. It is used in the following format and allows as many files to be specified as you wish:

`DELB file1 file2 file3...`

If any of the files specified do not exist the batch file will echo the filename to the screen, leaving the user to continue by pressing any key or abort by pressing [Ctrl][c].

### Counting Disk Drives

There are a couple of useful little routines used by the installation batch files of a 1512 to provide information about the machine which could be useful in any batch files. On Disk 2 (the blue GEM startup disk) in the directory \AUTO is DRVCNT.COM. This is used by the batch file AUTOCOPY.BAT (in the same directory) to return the number of drives on the machine. TYPE the batch file to see how it works.

The 1640 comes with a routine called DISPCHK.COM (in the

<code>Echo off</code>	<code>pause</code>
<code>IF "%1" =="" GOTO fin</code>	<code>GOTO return</code>
<code>MD DELB</code>	<code>:endprog</code>
<code>:begin</code>	<code>CD DELB</code>
<code>IF "%1" =="" GOTO endprog</code>	<code>DIR</code>
<code>IF NOT EXIST %1 GOTO notexist</code>	<code>CD ..</code>
<code>CD DELB</code>	<code>DEL *.*</code>
<code>COPY ..\%1 &gt;NUL</code>	<code>CD DELB</code>
<code>CD ..</code>	<code>COPY *.* .. &gt;NUL</code>
<code>:return</code>	<code>DEL *.*</code>
<code>SHIFT</code>	<code>CD ..</code>
<code>GOTO begin</code>	<code>RD DELB</code>
<code>:notexist</code>	<code>ECHO Deletion Complete!</code>
<code>ECHO %1 does not exist.</code>	<code>:fin</code>

\GEMSTART directory of Disk 1) which returns the display mode selected by the dip switches. It is used by the AUTOEXEC.BAT file in Disk 1's root directory.

### Directory Shorthand

If you do a DIR of a hard disk sub-directory you will find the following two entries at the very top. The first, the single stop, represents the current directory while the second, the double stop, represents the parent directory, which is the one above the current directory on the directory tree:

```
Volume in drive C has no label
Directory of C:\NW\EMPTY

. <DIR> 25-08-88 3:18p
.. <DIR> 25-08-88 3:18p
```

The double dot is commonly used with the Change Directory command, as in CD.. but less well known is that these directory entries can be used in other ways too:

**copy . b:** copies all the files in the current directory on to the floppy disk in drive B;  
**del .** deletes all the files in the current directory;  
**dir ..** shows a list of files in the parent directory.

In much the same way, the backslash \ indicates the root directory, so **del \** is equivalent to **del \\*.\***.

### Better Cursor For Your Portable

The Amstrad PPC512 and PPC640 portable, and indeed many laptop machines that use an LCD screen, suffer from a totally inadequate cursor. However you can use the following procedure to turn the cursor into a large flashing block which is rather easier to make out.

First, create a text file called BLOCK.TXT containing the lines:

```
n block.com
a 100
mov ah,1
mov cx,10C
int 10
```

```
int 20
[return]
r cx
9
w
q
```

Remember to leave a blank line after int 20 by simply pressing [return]. Now enter DEBUG < block.txt. This creates a tiny file called BLOCK.COM which, when run, changes the cursor to a flashing block. Unfortunately some programs turn the cursor back into a line, but many leave it as a block making it rather easy to see!

### Fatal stack errors

Certain programs sometimes give a 'Fatal Stack Error' or similar message, usually after you have done a couple of hours work and then try to save it to disk! As the message implies the error is fatal and there is nothing you can do except re-boot the machine.

This message is not usually caused by bugs in the software being run: it occurs because Microsoft decided to save a bit of memory when writing MS-DOS version 3.2 by cutting down on the stack space reserved. The solution is to add an additional line to your CONFIG.SYS file which says **stacks=64, 128**. This un-documented command restores the stack space to the value used in earlier versions of DOS.

Even so you can still eventually generate the error on some Amstrad PC1512s (but not for some odd reason on all of them) by turning the volume control down to zero and leaving a book on the keyboard so that it depresses a key.

### Checking machine configuration

You can check the current status of a printer (if any), and find out (roughly) what display adapter is fitted from within your programs by using MS-DOS interrupt calls. Interrupts are a means of 'low-level' communication between a program and the operating system, and they're normally used by programmers working in assembly language. QuickBASIC gives you access to interrupts with the INT86 command, described in the manual. Most other high-level languages provide some means of access.

An interrupt works by accepting parameter data in the 8086 processor's registers, performing whatever tasks are required, then returning replies in these same registers. QuickBASIC doesn't give you direct access to the processor registers but instead accepts two arrays of integers, one representing the data you want placed in the registers before the interrupt and the other the reply values returned by MS-DOS.

Two values determine which MS-DOS function is performed; the interrupt number, and the value set in the AH register (i.e. the most significant eight bits of element zero of the input array in QuickBASIC).

To check the printer status set AH to 02 and call Interrupt 17 (Hex). The bits of the byte returned in AH have the following meaning when set on:

- 7 Printer busy
- 6 Printer acknowledge
- 5 Out of paper
- 4 Printer on-line
- 3 Printer not connected/unavailable
- 0 Printer timed out

Checking the display adapter is slightly more complex. First, call

interrupt 10 Hex with AH = 12 Hex and BL = 10 Hex. If BL is still equal to 10 Hex on return, then you don't have an EGA adapter fitted.

Next, call interrupt 10 Hex with AH = 0F Hex. On return, AH contains the width of the screen in columns (40 or 80), and AL the screen display mode. If this value is seven, and you don't have an EGA fitted, then you have a monochrome display adapter fitted; if it's not seven, then you have a CGA adapter.

On the PC1512 there's no way of telling whether the monitor fitted is colour or monochrome as both types use exactly the same CGA-emulation mode. You can however check whether your program is running on a 1512 by using a special function which on the 1512 returns the version number of the ROM, but to an IBM PC looks like an illegal cassette interrupt. Call interrupt 15 Hex with AH = 06 Hex. If Carry is set it is not a 1512.

As a further check (This might after all be a legal call on some other clones), load BX with zero beforehand: a 1512 will return BX with the version number, a clone would probably leave it containing zero.

### Enough Buffers

Many people are not aware of the influence the BUFFERS parameter in the CONFIG.SYS file has over processing speed. With this in mind one of our readers (C.J. Drouin) set up a series of tests, based mainly on file copying, each time altering the BUFFERS parameter. This produced the following results:

BUFFERS=1	24.11 seconds
BUFFERS=5	13.90 seconds
BUFFERS=10	11.54 seconds
BUFFERS=20	9.39 seconds

### Checking the Directory Path

One problem which can occur when using the MS-DOS commands BACKUP and RESTORE is that DIRectory listings of the backup floppies don't tell you which sub-directories the files originally came from. This is particularly confusing when you have files with the same name in different directories – for example the two files \LIVE\PAYROLL.BAS and \TESTING\PAYROLL.BAS would appear as PAYROLL.BAS and PAYROLL.@@1 on the backup floppy disk's directory.

You can, however, find out the full pathname of a file on a BACKUP floppy disk by using the MS-DOS utility DEBUG. Say you have a file PAYROLL.BAS on a backup floppy in drive A, type debug a:payroll.bas. You should see a - prompt appear. Now enter d and a block of numbers and letters will appear. Somewhere in the top right hand part of this display the full directory and file pathname will be clearly visible. To leave DEBUG just enter q.

Anything above BUFFERS=20 yields little difference in the processing time, but with each buffer only taking up 0.5k of memory the trade off is well worth it.

### Patching QuickBASIC

Microsoft's QuickBASIC 2.01 is not fully compatible with the Amstrad PC1512 keyboard when it comes to [E] and [@], but can be made so by making the following changes:

Location	old QB.EXE	new QB.EXE
0002 A176	40h	22h
0002 A17A	23h	9Ch
0002 A241	60h	23h
0002 A252	22h	40h

Addresses are those found using PC Tools. Remember that DEBUG loads files by default from offset address 0100h. Make a backup before you start and use the backup to test the changes.

### Hexadecimal Converter

Hexadecimal place					Conversion	
5th	4th	3rd	2nd	1st	Hex	Binary
0	0	0	0	0	0	0000
65,536	4,096	256	16	1	1	0001
131,072	8,192	512	32	2	2	0010
196,608	12,288	768	48	3	3	0011
262,144	16,384	1,024	64	4	4	0100
327,680	20,480	1,280	80	5	5	0101
393,216	24,576	1,536	96	6	6	0110
458,752	28,672	1,792	112	7	7	0111
524,288	32,768	2,048	128	8	8	1000
589,824	36,864	2,304	144	9	9	1001
655,360	40,960	2,560	160	10	A	1010
720,896	45,056	2,816	176	11	B	1011
786,432	49,152	3,072	192	12	C	1100
851,968	53,248	3,328	208	13	D	1101
917,504	57,344	3,584	224	14	E	1110
983,040	61,440	3,840	240	15	F	1111

This table is particularly useful for converting large hexadecimal numbers to decimal or binary. The first five columns give the decimal equivalent of each place in the hexadecimal number so, for example, the hex number FC8A converts to  $61,440 + 3,072 + 128 + 10 = 64,650$  in decimal, or 1111 1100 1000 1010 in binary.

14 pages that will increase your PC productivity

## THE HELP SCREEN COLLECTION

### The Essential Guide to PC Compatible Hardware and Software

A compilation put together by Matt Nicholson, launch Editor of PC PLUS, and based on the popular Help Screen and FactSheet sections of the magazine, from issue 3 to the present day. Every item has been re-written and updated where necessary, and there is a comprehensive index to ensure information is at your fingertips when you need it.

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TOP TIPS

Edited by Matt Nicholson